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Shufeldt, R. W.—Osteology of Ceryle Alcyon. From the Journal of Anatomy and Physiology, Vol. XVIII. From the author.

Ijima, I., and Sasaki, C.—Okadaira shell-mounds, an appendix to Memoir Vol., Part I, of the Univ. of Tokio. From the author.

Lemoine, M. V.—Etude sur les caractères génériques du Simædosaure, reptile nouveau de la faune Cernaysienne des environs de Reims. From the author.

——Note sur l'Encephale du Gavial du Mont Aimé etudie sur trois moulages naturels. Ext. Bull. de la Soc. Geol. de la France, 1884. From the author.

Baur, G.—Der Carpus der Paarhufer. From the author.

A. A. A. S.—Proceedings of the American Association for the Advancement of Science, 1883. From the association.

Baird, S. F.—Report of the U. S. Commissioner Fish and Fisheries. 1881. Washington, 1884. From the commission.

Coues, E.—Key to North American Birds. Boston, 1884. From the author.

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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.[1]

AMERICA.—*The Greely Expedition.*—It is impossible to give in the NATURALIST a full account of this unfortunate yet successful expedition, but the following abstract will cover the principal features of its history, as known up to the present time. The four miles advance towards the Pole has been secured at a loss of nineteen lives, including that of the leader of the advance party. Fortunately for the cause of science, the whole of the records and instruments of the expedition have been saved. The health of the entire party during their two years' stay at Lady Franklin bay seems to have been excellent, and this, taken along with the experience of the crew of the *Eira*, goes to prove that scurvy and other diseases usually thought to be incident to an arctic climate can all be avoided with suitable clothing, proper and abundant food, and a good, well-warmed house, if proper discipline is maintained. It is said that the scientific work done by this expedition far surpasses in importance, completeness and scope that accomplished by any other. This is not the place to enter into a criticism of the actions of the leaders of the two relief expeditions which so signally failed to accomplish their purpose. Through their failure nineteen valuable lives have been lost, and had not Commander Schley acted with the utmost alertness and promptitude, forcing his way onward even at the risk of grounding on the ice, not a man would have been saved. Forty-eight hours more would have completed the destruction of the entire party.

Results show that it would have been better had the party remained at their station, where they appear to have had plenty of provisions and abundance of game, but their expectation was to find a sufficient supply of provisions cached for them by the expeditions which had failed to reach them, and they could not know that relief was on its way. The surprise and disappointment experienced when they found themselves without efficient protection and with totally insufficient provisions, compelled to endure the rigors of a third winter, must have exceeded anything that can be conceived by those who did not share the experience. Reduced to feed on seaweed, rock-lichens, sealskin and shrimps, of which latter the supply was very limited, it is no wonder that they gradually weakened and died. Sergeant Cross died in January, in April he was followed by Christiansen (half-breed), Edwards (Eskimo), Lieutenant Lockwood and Seargeants Linn, Rice and Jewell; four others died in May, and seven in June, including Dr. Octave Pavy, the surgeon of the expedition, and Lieutenant Kislinburg. Dr. Pavy was an experienced Arctic traveler. He took part in an expedition sent out by France, then spent several years among the Eskimos in Lady Franklin bay and Grinnell Land; next formed one of the members of the Howegate expedition, and lastly joined the party commanded by Lieut. Greely. He was born at Havre, France.

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[1] This department is edited by W. N. LOCKINGTON, Philadelphia.

AFRICA.—*Madagascar.*—This island, according to M. Alf. Grandidier, was discovered by the Portuguese on the 10th of August, 1500, instead of, as usually stated, the 1st of February, 1506. It was well known to the Greeks and Arabs, and, spite of the doubts of commentators, arising from ignorance of the regularity of the winds and currents and the usages of local navigation, it is doubtless the Menuthias of Ptolemy. The number of days' journey given by this author, when compared with that reached by the boats now navigating these seas, and with the details given by Arrian respecting the aspect and productions of Menuthias, are conclusive as to its identity with Madagascar. The Pyralaos or volcanic islands must be identified with the Comoro islands. Maçoudi mentions Madagascar under the name of the land of Djafouna, and Edriji, in his "Nozhat Almoschtak" marks it upon a planisphere (date 1153), under the name of Chezbeza, by the side of a group of islands which, from the accompanying description, are the Comoro islands. M. Grandidier has made a *fac simile* of this planisphere, the most ancient known map on which Madagascar is shown. The first planisphere which gave an exact idea of the position and configuration of this large island was that of Salvat de Pilestrina, dated 1511. The maps of Apres de Mannevillette (1770), and Owen (1825) gave the coasts with tolerable exactitude, but the disposition of the mountains, the river-courses and the forests were unknown previous to the explorations of M. Grandidier himself. Until 1871 all the geographies showed Madagascar as intersected from north to south by a great chain of mountains sending east and west ramifications, separated by wide valleys, while the entire area was forest-covered. The facts are widely different. The entire eastern part of the island is occupied by a much disturbed mountain mass, the watershed of which is not very distant from the Indian ocean; while the forests form a continuous girdle, only a few leagues in width, concentric with the coast and surrounding a vast area which is entirely without trees, and in its mountainous portions, that is to say, throughout two-thirds of its extent, is even without shrubs. The western part of the island is flat.

Cosmos gives an account of Captain Crema's journey in Morocco in 1882 with a map which corrects many defects in previous maps, and supplies many omissions. In the same issue G. Bianchi gives an account of his explorations in the Gurageh territory in 1880, with a map of the Galla territory south and east of Shoa.

The Aruwimi—It is known that the Congo, at the head of its bend to the north of the equator, receives a great tributary, the Aruwimi, from the north-east, but the course of this river is still unknown. A large river called the Welle, with numerous tributaries, the Gadda, Gurba and the considerable river Bomokandi, has been thought to be the Aruwimi, but Dr. Junker hopes to be soon able to adduce proof that it belongs to the system of the Shari, flowing into Lake Tchad, while he feels inclined to identify the Nepoko, a large river with numerous tributaries bordered by vast treeless swamps, with the Aruwimi of Stanley.

Asia.—*The Nan-schan Mountains.*—The explorations of Col. Przewalsky in the north-eastern part of Thibet have unraveled the complications of the mountain-chains of this region. The Kuen-luen mountains stretch, under various names, from Yarkand into the interior of China proper, but it is only in their western part that they form the northern boundary of the Thibetan highland, separating it from the low-lying desert of Tarim. Farther east the rim of this highland is double. The Tugus-daban connects the Kuen-luen with the colossal Altyn-tag to the east, and the latter is again connected with the still more easterly Nan-schan. Enclosed between the Kuen-luen and the northern mountains are the basin of the Koko-Nor and the ring-like plateau of Tsaidam. The Nan-schan consists of at least three parallel ranges and forms an alpine region of considerable width, broadest north and north-west of the Koko-Nor and at least forty versts wide in the meridian of Ssa-tcheon. Ssa-tcheon, situated in an oasis, is the chief town of the north-westerly prolongation of Kansu that extends between Mongolia and Thibet. Col. Przewalsky has given names to the subordinate ranges, one of which, the Humboldt, has summits at least 19,000 feet in height. Nowhere in the world is a greater contrast to be found than that between the two sides of this huge mountain rim. On the northern face of the Nan-schan extends a broad plateau 5000 to 7600 feet above the sea, with a vegetation of Ephedra, Haloxylon, Nitraria, Calligonum and *Artemisia campestris*, like that of the desert. The Nan-schan mountains are rich in gold, as are also the sands of the Dan-he river, which rises on their slope.

The Thousand Caves. — Col. Przewalsky, in his account of the Nan-schan mountains on the confines of Mongolia and Thibet, describes the "Thousand Caves" excavated by the Buddhists in a ravine lying between the sand desert and the mountains. These caves form two irregular rows, one above the other, excavated in the precipice. At the southern end a third row comes in. The lower row communicates with the upper by steps. Here, in the space of a verst, are many hundred caves, large and small, few of which remain uninjured. These caves were excavated under the Han dynasty. Walls and vaults were once covered with plaster and adorned with mosaics, and in some places remains of the larger images exist. Each of the smaller caves is from twenty-eight to thirty-five feet long, twenty-one to twenty-eight wide, and twenty-eight high. The larger caves have twice these dimensions, the figures in them are sometimes twice the natural size, and in their center stands a colossal figure upon a pedestal, surrounded by smaller figures. Two of the largest of these colossi are Da-fu-jan, eighty-five to ninety feet high, and some forty-five feet wide, with feet twenty-one feet in length, and forty-two feet apart between the great toes; and Dsho-fu-jan, which is about one-half these dimensions. In two of the caves there are upon the walks colossal idols in a recumbent position; one of these, called Schi-fu-jan, is surrounded by his seventy-two children. The head, the hands which are clasped over the breast, and the bare feet of this figure are gilded, and the garments striped with red. These figures are finished off with a mixture of clay and chopped reeds. At the entrances of the larger caves, and sometimes in the interior, are representations of heroes, often with grotesque or animal faces, and with swords, snakes, etc., in their hands. In one cave such a hero is mounted upon an elephant, while in another a similar figure rides upon a fabulous beast.

The Pamir.—The Proceedings of the Royal Geographical Society (March, 1884), give a map illustrating the Russian explorations in the Pamir, the "Roof of the World," and highest region of central Asia. The map is compiled from that of Dr. Regel and others, and includes the discoveries made by Captain Putiata, M. Ivanoff, and M. Bendersky, of the Pamir Expedition fitted out last year by the Russian governor of Turkistan. The upper courses of the Murghab, Great Pamir, and Khund, all tributaries of the Pandj, are clearly shown, and several lakes indicated. The Aksu is the head-stream of the Murghab.

Central Arabia.—M. C. Huber, already known from his travels in Central Arabia, is now at Haïl, the capital of Jebel-Schommar. Ibn Reschid, emir of this region, has recently defeated Abdallah Ibn Saoud, the heir to the Wahhabite throne. M. Huber, who was escorted from Damascus by three horsemen sent for that purpose, and is lodged in one of the finest houses of the capital, has collected much geographical information, and has obtained a hundred new inscriptions. He is about to depart to determine the position of the mountain mass of Jebel Agée, and proposes to traverse the entire Hedjaz. The results of his first journey are in preparation for publication by the Geographical Society of Paris.

The Aral.—M. Konshin states as the result of his explorations that the immense depression of Sara-kamysh, in some places 280 feet below the Aral, formed in a geologically recent time one basin with that lake. The fossils of this depression are identical with species found in the Aral and Caspian lakes and show that its waters were brackish or salt. The lake had an outflow into the Caspian.

CHINA.—M. Hosie, who has made a journey of nearly 2000 miles from Chung-King in Szo-chuan to Cheng-tu, capital of that province, and thence by Tali in Yunnan to Yunnan-Fu, returning by another route, states that the European maps of these districts are exceedingly defective, although fairly good native maps can be procured.

GEOLOGY AND PALÆONTOLOGY.

THE PROTOCONCH OF CEPHALOPODA.—The accepted divisions of the Cephalopods have been founded by authors wholly upon characteristics of the adult form of the shell, whether straight, as in Orthoceras, curved, as in Cyrtoceras, coiled up with open whorls, as in Gyroceras, or with the whorls in contact, as in Nautilus. These modifications, together with the outlines of the aperture and other minor characteristics, have, heretofore, determined the group to which any given shell was referred.

The examination of the young of all the closely coiled Nautiloidea shows them to be as a rule uncoiled, and in the earliest stages simply arcuate as in the adults of the group of the Cyrtoceratites, and having a scar on the apex which represents the beginning of the stage in which the animal commences to construct the true or secondary shell. The young of all the Ammonoids have, on the contrary, with the marked exception of some palæozoic species and some *varieties of species*, closely coiled whorls at the corresponding stage of growth, and upon the apex is a tiny bag or embryo shell, which has been very appropriately called the protoconch by Owen.

In my Embryology of Cephalopods, Bulletin of Museum of Comparative Zoölogy, Cambridge, No. 5, Vol. III, the position was taken that the scar of the Nautiloidea showed that a protoconch had existed in the embryo of Nautilus, but had disappeared during the growth of the shell, the scar being uncovered by its removal. This supposition was endorsed by Professor Richard Owen, but rejected by Barrande, who insisted that the general absence of a protoconch was a fatal objection. There exists, however, on the apex of some Orthoceratites, an excrescence or